

REMARKS

Upon entry of this Amendment, claims 1-20 are all the claims pending in the application. New claims 17-20 have been added. Independent claims 1 and 9 have been amended.

Claims 1-16 presently stand finally rejected. Specifically, claims 1-7 and 9-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsumura (USP 5,550,506) in view of Tsumura (USP 5,511,097) and claims 8 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tsumura (USP 5,550,506) in view of Tsumura (USP 5,511,097) and further in view of Saito (USP 5,260,975).

For the reasons set forth below, Applicant respectfully traverses the rejections and requests favorable disposition of the application.

Argument

The prior art references asserted by the Examiner, Tsumura '506 and Tsumura '097, do not teach or suggest at least the claimed weighting means or the claimed deciding means of independent claim 1 or the corresponding steps of independent claim 9. For example, the Examiner asserts that the claimed weighting means is taught by Tsumura '506 at reference numbers 26 and 27 of FIG. 3. Specifically, the Examiner contends that MOD 26 and multiplier circuit 27 receive "correction values", i.e., the input to box 24, and apply a weighting factor to the correction values as claimed. The Examiner, however, has misinterpreted both the disclosure of the prior art reference as well as the recited claim language. For example, it appears that the Examiner has likened the weighting function disclosed as part of the first correcting circuit 24 in Tsumura '506 to the claimed weighting means and completely ignored the fact that the claimed

received error rate improving means of claim 1 also has a weighting function in which it weights “differences of symbols before and after a current symbol to be demodulated and provides the weighted differences as feedback.”

Initially, it should be noted that the device disclosed in the Tsumura ‘506 patent is discussed thoroughly in the background section of the present specification, i.e., at page 2, line 26 through page 4, line 14. That is, Japanese Patent Application Laid-Open No. HEI 8-32640 is the Japanese counterpart application to the Tsumura ‘506 application. Thus, as discussed in the present specification, the device of the ‘506 patent is problematic precisely because, unlike the claimed demodulator, the device of the ‘506 patent is not suitable for a cellular telephone since it does not adequately support an external correction loop after symbol detection and, more particularly, the ‘506 device does not include the claimed weighting means. (See, e.g., page 4, lines 15-25).

MOD 26 and multiplier circuit 27 shown in FIG. 3 of Tsumura ‘506 are arguably similar in function to MOD 9 and weighting circuit 16 shown in FIG. 1 of the present application. That is, MOD 9 receives the phase difference of the signals before and after delay circuit 1 and weighting circuit 16 is used to attenuate the output of MOD 9. Neither weighting circuit 16 of the present application nor multiplier 27 of Tsumura ‘506, however, is the same as the “weighting means” as claimed in claim 1. Neither weighting circuit 16 nor multiplier 27 “applies weighting to one or more correction values provided from an external loop, wherein the correction values are generated after the current symbol is detected,” as expressly required by the claim.

As shown in FIG. 1 of the present application and disclosed at page 11, lines 1-19, an external loop, such as automatic frequency control, AFC, provides “correction values” to weighting circuit 37 which applies weighting to the correction values. The weighted correction values are then applied to adders 6, 7, 8, 23, 24 and 33 and are, thus, added to the respective detected phase differences generated by these adders. Tsumura ‘506 simply does not disclose the claimed correction values and, more specifically, does not disclose weighting the correction values. Tsumura ‘097 and Saito fail to teach this feature as well.

The Examiner asserts that Tsumura ‘097 teaches “weighting differences of symbols”, but the Examiner fails to point to any disclosure within Tsumura ‘097 for support of this assertion. In fact, nowhere in Tsumura ‘097 is weighting disclosed and, more particularly, nowhere is weighting correction values disclosed. At least because neither Tsumura ‘506 nor Tsumura ‘097 teaches or otherwise suggests the claimed weighting means, even if a skilled artisan were to combine the two references, the result would not include all the recited elements of the claims and, thus, at least claims 1 and 9 are patentable over the cited prior art.

Furthermore, however, contrary to the Examiner, Tsumura ‘097 does not teach the claimed deciding means. Indeed, Tsumura ‘097 discloses “decision means 25”, as shown in FIG. 2 and disclosed at column 8, lines 45-53. However, nowhere in Tsumura ‘097 is it disclosed that decision means 25 “decides an order of priority for the one or more weighted correction values.”

As disclosed in Tsumura ‘097, decision means 25 receives a plurality of dummy demodulation symbol signals 1111 to 111n and a plurality of phase difference error signals 1121 to 112n. Decision means 25 then “detects a smallest one from the phase difference error signals

1121 to 112n” and “selects a demodulation symbol corresponding to the smallest phase difference error signal.” First, selecting the smallest of a plurality of things, e.g., numbers, is clearly not the same as deciding an order of priority for a plurality of things. Further, the disclosed phase difference error signal of Tsumura ‘097 is not the same as the claimed “correction values” and, more particularly, it is not the same as the claimed “weighted correction values”. For this additional reason, the proposed combination of Tsumura ‘097 and Tsumura ‘506 does not disclose each and every element of the claims and the rejection should be withdrawn.

Claims 1 and 9 are patentable over the proposed combination of Tsumura ‘506 and Tsumura ‘097 for at least the reasons set forth above. Furthermore, claims 2-8 and 10-16 are patentable over the cited references at least by virtue of their dependency on claims 1 and 9, respectively.

Patentability of New Claims

For additional claim coverage merited by the scope of the invention, Applicant has added new claims 17-20. Applicant submits that the prior art does not disclose, teach, or otherwise suggest the combination of features contained therein. For example, none of the prior art references teach or otherwise suggest first and second weighting circuits as claimed in independent claim 17. Support for the subject matter recited in new claims 17-20 is found in the present specification at least at page 10, lines 16-19 and page 11, lines 15-19.

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Appln. No. 09/609,532

Conclusion

In view of the foregoing remarks, the application is believed to be in form for immediate allowance with claims **1-20**, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to **contact the undersigned** at the telephone number listed below.

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